

NEW APPLICATION



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BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

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BRENDA BURNS

BOB BURNS

SUSAN BITTER SMITH

Arizona Corporation Commission

DOCKETED

JUL 1 2014

AZ CORP COMMISSION

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2014 JUL 1 PM 3 04

DOCKETED BY

E-04204A-14-0249

IN THE MATTER OF THE APPLICATION OF
UNS ELECTRIC, INC. FOR APPROVAL OF ITS
2015 RENEWABLE ENERGY STANDARD
IMPLEMENTATION PLAN.

DOCKET NO.

APPLICATION

ORIGINAL

UNS Electric, Inc. ("UNS Electric" or the "Company"), through undersigned counsel, hereby submits its 2014 Renewable Energy Standard and Tariff ("REST") Implementation Plan ("Plan") for Arizona Corporation Commission ("Commission") approval, in compliance with Arizona Administrative Code ("A.A.C.") R14-2-1801 *et seq.*

UNS Electric's Plan is designed to achieve 2015 REST compliance as cost-effectively as possible. The key components of the Plan include new renewable energy resources to be added through 2019 proposed and existing Company programs, budgets for each of those programs; and customer funding and related REST tariff. The estimated cost for 2015 related projects and programs is \$8.6 million. UNS Electric proposes to recover \$5.8 million through the REST tariff, which \$2.8 million less than the overall budget because of the application of carryover funds from the 2013 budget. In order to implement this Plan, UNS Electric requests that the Commission approve the continuation of the current 2014 REST surcharge of \$0.01000 per kWh for 2015.

UNS Electric remains solidly committed to the REST and its Plan provides for renewable generation to meet the 2015 compliance requirement of five (5) percent of retail sales. The Company has entered into agreements with developers for the construction of renewable generation and is moving forward with plans to construct its own renewable generation.

1. UNS Electric's 2015 Renewable Energy Implementation Plan prior to December 31, 2014;
and
2. Continuing the REST surcharge of \$0.01000 per kWh for 2015.

By

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1 Copies of the foregoing hand-delivered/mailed
This 1st day of July, 2014, to the following:

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UNS Electric, Inc.

**2015 Renewable Energy Standard
Implementation Plan**

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I. EXECUTIVE SUMMARY

UNS Electric, Inc. (“UNSE” or “Company”) has prepared its 2015 Implementation Plan (“Plan”) in compliance with the Arizona Corporation Commission’s (“Commission’s”) Renewable Energy Standard and Tariff (“REST”) Rules pursuant to Arizona Administrative Code (“A.A.C”) R14-2-1813. The cost-effective strategy set forth in the Plan demonstrates UNSE’s commitment to fulfilling the REST requirements for 2015 and beyond. Key components of the Plan include: new renewable energy resources to be added through 2019; proposed and existing Company programs; program budgets; and the customer funding and related REST tariff. UNSE requests that the Commission approve the Plan, as well as the associated budget and tariff, prior to December 31, 2014 so it may become effective January 1, 2015.

Pursuant to A.A.C. R14-2-1804 and R12-2-1805, UNSE must obtain five (5.0) percent of its 2015 annual retail sales from renewable resources; thirty (30) percent of that renewable energy must come from distributed generation (“DG”) resources. UNSE plans to satisfy this requirement using existing utility-scale renewable generation and credits; power purchase agreements (“PPA”) with renewable developers; new utility-owned renewable generation; and DG resources.

To fund these efforts, UNSE is proposing an \$8.6 million budget for its 2015 REST plan and related projects. This funding is necessary to cover the cost of utility-scale renewable generation; to make incentive payments for DG resources; to carry out the programs; to create education and outreach efforts; and to cover administrative expenses. For 2015, UNSE proposes to recover approximately \$5.8 million through the REST tariff; this is \$2.8 million less than the overall budget due to the application of carryover funds from 2013 budget. Going forward, UNSE expects its future REST budgets will increase, adding up to a five-year combined total of approximately \$40 million (see Exhibit 1).

UNSE’s Plan uses the most cost-effective measures and provides a realistic strategy for

REST compliance. Therefore, the Company requests that the Commission approve the Plan and find that it is in the public interest.

II. UNSE 2015 IMPLEMENTATION PLAN COMPONENTS

For 2015, UNSE's total renewable generation requirement is five (5.0) percent of retail sales, a level projected to equal 84,076 megawatt hours ("MWh"). The REST targets two resource categories: utility-scale generation and DG. UNSE intends to expand its utility-scale generation portfolio and enhance its Bright Arizona Solar Buildout Plan.

A. Utility-Scale Renewable Generation

UNSE will satisfy the 2015 utility-scale requirement through renewable resources capable of producing approximately 143,000 MWh in 2015. These resources include Company-owned systems and utility-scale projects developed through PPAs. Company-owned resources include a 1.2-MW solar array near La Senita Elementary School in Kingman and a 7.2 MW solar array near Rio Rico. Resources secured through PPAs include a 9.9 MW solar array near the Company's Black Mountain Generating Station in Mohave County and a 10.5 MW combined wind and solar resource in the Kingman area. These projects will provide UNSE with enough renewable power to meet or exceed its utility-scale REST requirement in 2015. Graph 1 below shows how UNSE's current and planned resources will allow the Company to satisfy its utility scale REST requirements through 2019.

Graph 1. Renewable Energy Standard Targets

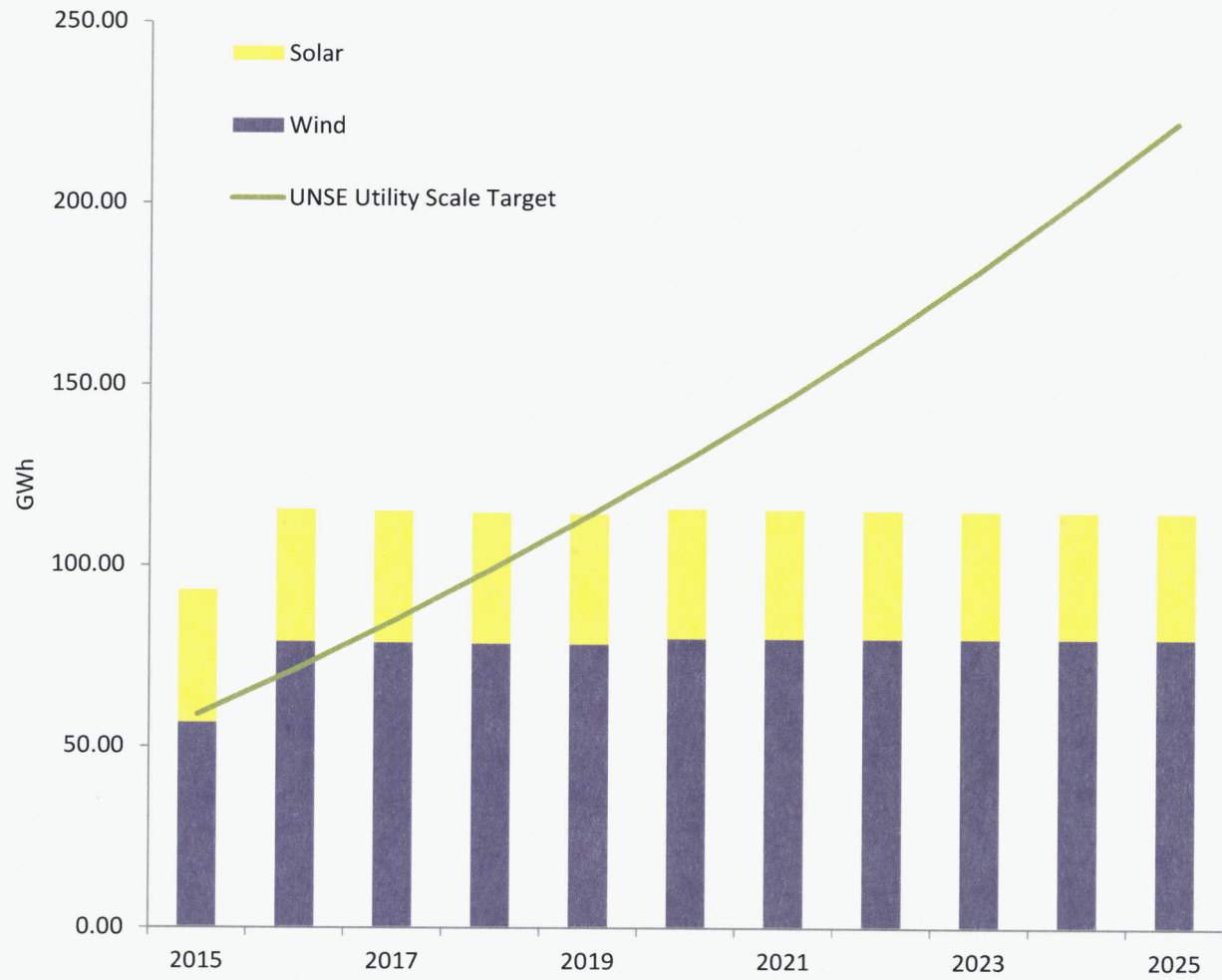


Table 1 below depicts UNSE's utility-scale projects, including existing systems and planned resources.

Table 1. Utility Scale Generation

Project	Capacity MW	Annual MWh	Technology	Expected In-Service Date	UNSE Owned
Existing Renewable Generation					
Western Wind (Brookfield)	10	23,437	Wind	Operational	No
Western Wind (Brookfield) Solar	0.5	925	Fixed PV	Operational	No
Black Mountain (BMSF)	9.9	23,298	Fixed PV	Operational	No
La Senita	1.2	2,105	Fixed PV	Operational	Yes
Rio Rico	7.2	11,427	Fixed PV	Operational	Yes
Total Existing	28.8	61,192			
Project	Capacity MW	Annual MWh	Technology	Expected In-Service Date	UNSE Owned
Bright Arizona Solar Buildout Plan					
TBD (Kingman Project)	5.8	10,730	TBD	2015	Yes
Total Future - BASBP	5.8	10,730			
Future Renewable Generation					
Red Horse Project (Solar)	30	32,193	Fixed PV	Jun-15	No
Total Future – Pending (Contracts)	30	32,193			
Total Planned Generation (Contracts)	64.6	42,923			
Total Planned Generation thru 2015	58.8	93,385			

B. Bright Arizona Solar Buildout Plan

UNSE's solar ownership plan ("Bright Arizona Solar Buildout Plan" or "Buildout Plan") accounts for a small portion of the Company's compliance with the REST utility-scale requirement. UNSE's proposed investments in its Buildout Plan were approved by the Commission in the Company's 2010 rate case (Decision No. 71914, September 30, 2010). The order approved investments of up to \$5 million per year to develop renewable technologies that

will help diversify the Company's renewable portfolio and satisfy REST requirements.¹ The Buildout Plan is an essential component of UNSE's renewable strategy because utility-owned projects provide balance to its renewable portfolio while offering greater certainty regarding future resource development.

As approved, the \$5 million annual Buildout Plan (see Table 1) will allow UNSE to own approximately 20 percent of the renewable energy needed to meet the REST utility-scale requirement; the balance of the requirement will be satisfied through PPAs. Because the prices of solar panels and other system components have continued to decline in 2014, UNSE now projects 2.85 MW in annual capacity increases under the Buildout Program.

In addition to approval of this Plan, UNSE requests specific Commission approval of the continuation of the Company's Buildout Plan in 2015-16. This approval will allow the Company to design a procurement solicitation to build a new facility in 2015 and a subsequent facility expansion in 2016. This process will reduce design, engineering, and procurement costs, allow the use of a single interconnection and create an opportunity to satisfy the minimum 5 MW requirement to qualify for a state production tax credit.

Table 2. Bright Arizona Solar Buildout Plan Investment Timeline

Year Installed	Year Recovered	Annual Capital Investment	MW Capacity
2015	2016	\$ 5,000,000	2.85
2016	2017	5,000,000	2.85
2-Year Total		\$ 10,000,000	5.7

The annual revenue requirement for the investment is detailed in Table 3 below. The revenue requirement includes recurring costs related to the capital investment, including return

¹ Decision No. 71914 (September 30, 2010) at page 64, line 6-9.

² The property tax revenue requirement for each investment is recovered in year two.

on investment, depreciation, property taxes, and operations and maintenance (“O&M”) expense. UNSE seeks continued recovery of these costs through the REST tariff as approved by the Commission until such investments and related costs can be included in base rates. Each column shown in Table 3 represents the expected revenue requirement for UNSE’s capital investment² from the prior year. Table 4 shows expected cumulative annual revenue requirements.

Table 3. Revenue Requirement for the Bright Arizona Solar Buildout Plan

Revenue Requirement	2015	2016	2017	2018
Carrying Costs	\$ 993,295	\$ 432,293	\$ 654,897	\$ 532,739
Book Depreciation	750,000	395,833	500,000	500,000
Property Tax Expense	64,132	30,837	-	43,085
O&M	111,240	57,289	225,000	231,750
Lease Expense	30,000	15,000	-	-
Total Revenue Requirement	\$ 1,948,667	\$ 931,252	\$ 1,379,897	\$ 1,307,574

Table 4. Estimated Annual Budget for the Bright Arizona Solar Buildout Plan

Utility Owned Solar Projects by Year	2015	2016	2017	2018	2019
2014 - Rio Rico 7.2 MW	\$ 1,948,667	\$ 910,418	\$ -	\$ -	\$ -
2016 - Kingman 16.0 MW	-	20,833	1,379,897	1,307,574	-
Annual Revenue Requirement	\$ 1,948,667	\$ 931,252	\$ 1,379,897	\$ 1,307,574	\$ -

C. Distributed Generation Incentive Program

UNSE is not proposing residential DG incentives for 2015. As of this filing, UNSE has exhausted its 2014 budget for residential DG incentives; nevertheless, installations of such systems have continued at an acceptable pace. While many issues may affect future adoption rates for solar DG – including changes to tax incentives, net metering rates or other Commission policies – the Company does not believe new incentives will be required to maintain an adequate pace for residential DG installations in 2015.

On the other hand, DG adoption rates among non-residential customers have lagged in 2014. Despite the availability of a \$0.10 per watt up-front incentive (“UFI”), the Company has received only two applications to date for systems with a combined capacity of approximately 79

kW. To create more interest in such systems, the Plan budgets \$200,000 to fund an increased, \$0.20 per watt incentive for non-residential systems in 2015.

UNSE is proposing the continuation of the solar water heating program at \$0.40 per kWh, up to a budget of \$40,000. The Plan also includes funds for performance-based incentives (“PBIs”) awarded in prior years, before those incentive programs were discontinued. To fund these programs, the budget for the proposed incentive program is \$932,297.

The residential and/or non-residential UFI for each plan and existing PBI allocations are shown in Table 5. Also included are the relative MWh and MW achieved.

Table 5. UFI/PBI Budget and Forecast

Customer Segment	2015	Annual MWh	Annual MW
Residential UFI - Solar Water Heating	\$ 40,000	100	-
Non-Residential UFI	200,000	1,750	1.0
Existing PBI	892,297	14,273	8.2

D. Market Cost of Comparable Conventional Generation

Consistent with the REST rules, UNSE calculates program expenses using the Market Cost of Comparable Conventional Generation (“MCCCG”). Details on the methodology for the MCCCG calculation are included in attached Exhibit 2. The annual MCCCG rates are calculated in advance and stated as a single dollar-per-MWh value by technology type. The expenses are based on PPA pricing after subtracting the corresponding MCCCG based on projected hourly energy profiles and are included in Exhibits 3 (AMCCCG) and 4 (IP Resource Costs) (both confidential).² Associated capacity can be seen in Exhibit 5 (IP New Resources). The profiles are determined by UNSE’s production cost model in coordination with the Company’s annual Purchased Power and Fuel Adjustment Clause (“PPFAC”) filing. The MCCCG will be included for wind, PV systems, concentrated solar with storage, and bio-fueled renewable resources.

² Exhibits will be provided to Commission Staff upon execution of a protective agreement.

III. THE PLAN BUDGET

As stated previously, the cost to implement UNSE's Plan will be \$8.6 million. The Plan's detailed budget is attached as Exhibit 1. Exhibit 1 includes a breakdown of the costs for renewable energy, the DG programs, research and development, outside services support and reporting, technology, and marketing. Table 6 includes a high-level Plan budget.

Table 6. Plan Budget by Category

Category	Budget
Utility Scale	\$ 7,214,798
Residential UFI - Solar Water Heating	40,000
Non-Residential UFI	200,000
Existing Large Non-Residential PBI	892,297
Associated Costs (Education and Outreach, Technical Training, I.T., Metering, Labor, R&D)	326,703
2015 Program Cost	\$ 8,673,798
Carryover	2,791,292
Total 2015 Plan	\$ 5,882,506

IV. THE 2015 REST TARIFF

A summary of the Company's current REST surcharge and caps is presented in Exhibit 6.³ UNSE's 2015 Plan calls for maintaining the tariff charge at \$0.01000/kWh – its 2014 level – and preserving the current monthly caps by customer class. The caps were developed using the proportional cap allocation method previously approved by the Commission. Under this methodology, the caps for all customer classes remain the same. Table 7 details the Company's approved budget for 2014 and proposed budget for 2015 delineated by rate class and sets forth the currently approved customer class caps and the caps proposed for the 2015 Plan.

³ The Customer Load Percentage Analysis is set forth in the attached Exhibit 7.

Table 7. 2014/2015 Budget by Rate Class

Rate Class	2014 Approved Budget	2015 Proposed Budget
Residential	\$ 2,961,907	\$ 2,996,699
Commercial	2,498,356	2,508,602
Lighting (PSHL)	6,097	7,310
Industrial & Mining	466,970	369,914
Total	\$ 5,933,330	\$ 5,882,526
Rate Class	2014 Approved Caps	2015 Proposed Caps
Residential	\$ 3.50	\$ 3.50
Commercial	90.00	90.00
Lighting (PSHL)	90.00	90.00
Industrial & Mining	10,000.00	10,000.00
Per kWh to All Classes	\$ 0.010	\$ 0.010

V. RENEWABLE ENERGY BALANCING, INTEGRATION, AND FIELD TESTING

UNSE typically commits a portion of its REST budget to provide technical support for the adoption of renewable energy. Table 8 outlines UNSE's proposed budget for this work in 2015. The Company plans to continue its commitment to furthering the integration of renewable energy on its system by participating in the following projects.

Table 8. UNSE's Integration Initiatives by Project

Renewable Integration Initiatives	Budget
Solar and Wind Forecast Integration Portal	\$ 25,000
UVIG, SEPA, AWEA Membership Dues	7,500
Total	\$ 32,500

A. Solar and Wind Forecast Integration Portal

In 2013 and 2014, UNSE established a multi-year partnership with the University of Arizona's ("UA's") Departments of Physics and Atmospheric Sciences to create a Solar and Wind Integration Forecasting Portal. This portal will provide forecasting tools to help utilities

better integrate renewable resources with their operation, especially given the reliability issues of solar and wind generation. In 2015, the second year of a two-year program to develop these tools, the Company expects the integration to be fully operational. The proposed budget for this program is \$25,000.

B. UVIG, SEPA, AWEA

To facilitate its compliance with the REST, UNSE actively participates in three renewable industry associations: the Utility Variable (Energy) Integration Group (UVIG), the Solar Electric Power Association (SEPA), and the American Wind Energy Association (AWEA). High penetrations of solar and wind make UVIG (a variable generation group) relevant, while SEPA and AWEA provide resources and expertise that help the Company manage renewable programs and stay informed on issues facing the industry. The proposed budget for these groups' fees is \$7,500.

VI. CONCLUSION

The proposed 2015 Renewable Implementation Plan filed by UNSE has been developed to effectively comply with the REST mandate. The Company feels that the proposed plan is prudent and in the public interest. The Company also feels that specific approval of its Bright Arizona Solar Buildout Plan for 2015-16 will create significant benefits for customers by facilitating cost-effective compliance with the REST mandate. UNSE respectfully requests that the Commission adopt the UNS Electric 2015 REST Implementation Plan as submitted, including the Arizona Solar Buildout Plan for 2015-16.

Exhibit 1

UNSE Exhibit 1 REST Line Item Budget

Exhibit 1						
UNS Electric Renewable Energy Standard Tariff						
Line Item Budget						
	2014	2015	2016	2017	2018	2019
Total REST Budget & Tariff Collection:	\$ 5,948,521	\$ 5,882,506	\$ 9,240,296	\$ 9,392,480	\$ 8,199,559	\$ 7,211,894
Utility Scale Energy						
Above Market Cost of Conventional Generation	\$ 3,738,661	\$ 5,266,131	\$ 6,834,667	\$ 6,521,520	\$ 6,076,815	\$ 5,683,041
UNSE Owned	1,687,757	1,948,667	\$ 931,252	\$ 1,379,897	\$ 613,565	\$ -
Subtotal	5,426,418	7,214,798	7,765,919	7,901,417	6,690,380	5,683,041
Customer Sited Distributed Renewable Energy						
Residential Up-Front Incentive (UFI)	100,000	-	-	-	-	-
Non-Residential Up-Front Incentive (UFI)	100,000	200,000	200,000	200,000	200,000	200,000
Residential - Solar Water Heating (UFI)	-	40,000	40,000	40,000	40,000	40,000
Annual Performance Based Incentive (PBI)	1,348,541	892,297	892,297	892,297	892,297	892,297
Meter Reading	6,250	6,250	6,250	6,250	6,250	6,250
Consumer Education and Outreach	30,000	30,000	30,000	30,000	30,000	30,000
Subtotal	1,584,791	1,168,547	1,168,547	1,168,547	1,168,547	1,168,547
Technical Training: Internal and Contractor Training	37,500	37,500	37,500	37,500	37,500	37,500
Information Systems	20,000	20,000	20,000	20,000	20,000	20,000
Metering	47,430	91,365	95,933	100,730	105,766	111,055
Program Labor and Administration:						
Labor, Materials, Supplies	193,423	108,088	118,897	130,786	143,865	158,252
AZ Solar Website	1,000	1,000	1,000	1,000	1,000	1,000
Subtotal	194,423	109,088	119,897	131,786	144,865	159,252
Renewable Energy Balancing, Integration, and Field Testing						
PV Panel Lab Degradation Testing	23,700	25,000	25,000	25,000	25,000	25,000
Solar and Wind Forecast Integration Portal	7,500	7,500	7,500	7,500	7,500	7,500
Subtotal	31,200	32,500	32,500	32,500	32,500	32,500
Total Spending	7,341,762	8,673,798	9,240,296	9,392,480	8,199,559	7,211,894
Carryover of REST Funds	1,393,241	2,791,292	-	-	-	-
Total Amount for Recovery	5,948,521	5,882,506	9,240,296	9,392,480	8,199,559	7,211,894

Exhibit 2

**Market Cost of Comparable Conventional Generation
2015 Renewable Energy Standard and Tariff**

OVERVIEW

Consistent with the Renewable Energy Standard Tariff (“REST”) Rules passed by the Arizona Corporation Commission (“Commission”), UNS Electric, Inc. (“UNSE”) Renewable Energy Standard and Tariff Implementation Plan contemplates recovery of expenses in excess of the Market Cost of Comparable Conventional Generation (“MCCCG”).” The Commission provided guidance on defining MCCCG in the context of its REST Rules and identified the MCCCG as “the Affected Utility’s energy and capacity cost of producing or procuring the incremental electricity that would be avoided by the resources used to meet the Annual Renewable Energy Requirement, taking into account hourly supply and demand circumstances. Avoided costs should include any avoided transmission, distribution, and environmental compliance costs.” This exhibit defines the methodology for developing the MCCCG rate for the Company.

METHODOLOGY

Annual MCCCG rates shall be calculated in advance and stated as a single \$/MWh value by renewable technology type. The renewable technology types will be based on projected hourly energy profiles for each type of renewable resource. Annual MCCCG rates will include renewable resources such as wind resources, fixed photovoltaic systems, concentrated solar with storage, single-axis tracking photovoltaic systems, and bio-fueled resources. Specific MCCCG rates would be developed as needed when new renewable technologies or new purchase power agreements are added to the Company’s renewable portfolio. Annual MCCCG rates will capture the value of the seasonality and time of day delivery by deriving an average of on and off peak dispatch costs weighted by on and off peak renewable generation. MCCCG rates shall be calculated each year using the companies production cost simulation software ‘Planning & Risk’, and will be done in coordination with the company’s annual Purchase Power and Fuel Adjustment Clause (PPFAC) filing. The hourly MCCCG rate determination criteria are shown in Table 1 below by comparing the types of renewable generation with the resource dispatch

UNSE Exhibit 2 – Definition of Market Cost of Comparable Conventional Generation

type. All projected MCCCCG hourly rates are based on a ‘Planning & Risk’ production cost simulation that forecasts adequate generation and transmission capacity to meet all firm load obligations including system reserve requirements. Finally, the cost of renewable generation above the annual MCCCCG rates will be recovered through the REST Adjustor Mechanism and REST Tariff.

Table 1 - MCCCCG Hourly Rate Determination Matrix

Types of Renewable Generation Resources					
Resource Dispatch Type		Dispatchable Renewable Generation	Firm Renewable Generation	Non-Firm Renewable Generation	Curtailable Non Firm Renewable Generation
	Wholesale sales transaction served from existing resource portfolio	The MCCCCG rate will be based on projected incremental production costs to serve firm load and wholesale sales opportunities for that hour. Costs will include any projected transmission, distribution and environmental compliance costs.			
	No market transactions. Generation available from thermal resource portfolio.				
	Day, week or month ahead purchase transaction to serve firm load requirements.	The MCCCCG rate will be based on the projected day, week or month-ahead firm purchase power transactions committed for that hour. Costs will include any projected transmission, distribution and environmental compliance costs.			
	Spot market transaction to serve firm load requirements.	The MCCCCG rate will be based on the projected Palo Verde spot market price for that hour. Costs will include any projected transmission, distribution and environmental compliance costs.			

UNSE Exhibit 2 – Definition of Market Cost of Comparable Conventional Generation

CALCULATION

$$MCCCG_{on} = \text{Annual Average On Peak MCCCCG Rate} = \frac{\sum_{i=1}^{8760} PR_i * G_i * X_i}{\sum_{i=1}^{8760} G_i * X_i}$$

$$MCCCG_{off} = \text{Annual Average Off Peak MCCCCG Rate} = \frac{\sum_{i=1}^{8760} PR_i * G_i * (1 - X_i)}{\sum_{i=1}^{8760} G_i * (1 - X_i)}$$

$MCCCG_{Annual Rate}$ = Average of on and off peak MCCCCG rate weighted by projected on and off peak renewable generation.

It is assumed that there is a specific MCCCCG rate for each renewable technology type.

Where

PR_i = Projected Planning & Risk dispatch cost (\$/MWh) for hour $i=1,2,...,8760$.

G_i = Projected energy generation in renewable technology resource profile for hour $i=1,2,...,8760$.

$X_i = \begin{cases} 1 & \text{if hour } i \text{ is an on peak market hour} \\ 0 & \text{Otherwise} \end{cases} \text{ for } i = 1, 2, \dots, 8760$

Table 2 – UNSE’s 2015 MCCCCG Annual Rates

Renewable Technology	MCCCCG Annual Rates	\$/MWh
	Solar PV	\$66.64
	AZ Wind	\$58.40
	Biomass	\$58.26
	NM Wind	\$59.55
	Solar CSP	\$64.78

Exhibit 3

REDACTED

Exhibit 4

REDACTED

Exhibit 5

UNSE Exhibit 5 - Implementation Plan New Resources

IMPLEMENTATION PLAN - UNSE

Table 1 - Targeted Resources

Line No.	Targeted Generation Resources:	Ownership ¹	Targeted Completion	2008-2014 Total MW	Targeted Energy Production (MWh or Equivalent)					Line No.
					2015	2016	2017	2018	2019	
1	Solar:									1
2	Black Mountain (BMSGGS)	PPA	COMPLETE	9.9	23,066	22,951	22,836	22,722	22,608	2
3	Red Horse	PPA	6/15/2015	30.0	31,872	54,364	54,092	53,822	53,553	3
4	La Senita (Solon)	UNSE	COMPLETE	1.2	2,106	2,095	2,085	2,074	2,064	4
5	Rio Rico (Santa Cruz Valley)	UNSE	COMPLETE	7.2	11,427	11,370	11,313	11,256	11,200	5
6										6
18										18
19	Wind:									19
20	Western Wind (Kingman)	PPA	COMPLETE	10.3	24,362	24,362	24,362	24,362	24,362	20
21										21
30	Total Targeted Generation			58.6	92,833	115,142	114,688	114,236	113,787	30
31										31
32	Targeted Distributed Energy Resources:									32
33										33
34	Residential:									34
35	Solar PV									35
37										37
38	Subtotal Residential			9.3	16,240	16,240	16,240	16,240	16,240	38
39										39
40	Non-Residential:									40
41	Solar PV			0.1	1,860	3,610	5,360	7,110	8,860	41
42	Solar PV			4.8	7,321	7,321	7,321	7,321	7,321	42
43	Subtotal Non-Residential			4.9	9,181	10,931	12,681	14,431	16,181	43
44										44
45	Residential or Non-Residential:									45
46	Solar Heating			N/A	100	100	100	100	100	46
47	Subtotal Residential or Non-Residential			N/A	100	100	100	100	100	47
48										48
49	Total Targeted DE			14.1	25,521	27,271	29,021	30,771	32,521	49
	Total Targeted Resources			72.7	118,354	142,413	143,709	145,007	146,308	

Notes:

¹All utility-owned and Third Party generation projects are developed through a competitive RFP process, and all DE systems are built independently by Third Party developers and installers.

Exhibit 6

Exhibit 6 - UNSE REST Surcharge Summary

Rider R-6 –

Renewable Energy Standard and Tariff Surcharge REST-TS1 Renewable Energy Program Expense Recovery

Per kWh Rate and monthly cap: <u>Monthly Cap</u> For Residential Customers: For Commercial Customers: For Industrial Customers: For Lighting (PSHL):	\$0.01000 per kWh <u>Monthly Cap</u> \$3.50 per month \$90.00 per month \$10,000 per month \$90.00 per month
Monthly Cap Rate for Customers who pay the average price by class: <u>Monthly Cap</u> For Residential Customers: For Commercial Customers: For Industrial Customers: For Lighting (PSHL):	<u>Monthly Cap</u> \$3.04 per month \$20.98 per month \$9,911 per month \$3.82 per month

Exhibit 7

UNSE Exhibit 7 – Customer Load Percentage Analysis

UNS ELECTRIC, INC. 2015 REST IMPLEMENTATION PLANS CUSTOMER IMPACTS

2015 Company Proposal						
Customer Class	Total Revenue	Percent of Revenue	Average Bill	Monthly Cap	Percent of Customers at Cap	Percent of Load
Residential	\$3,003,638	51.0%	\$3.10	\$3.50	88.6%	49.8%
Commercial	\$2,512,026	42.6%	\$19.50	\$90.00	21.7%	35.6%
Lighting	\$7,310	0.1%	\$1.30	\$90.00	1.4%	0.0%
Industrial & Mining	\$370,994	6.3%	\$9,763.10	\$10,000.00	97.6%	14.61%
Total	\$5,893,969	100.0%				

Exhibit 8

Exhibit 8

UNS Electric, Inc.

Renewable Energy Credit Purchase Program

2015

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I. Frequently Asked Questions

What is Distributed Generation?

Distributed Generation (DG) is defined as electric generation sited at a customer premise, providing electric energy to the customer load on that site or providing wholesale capacity and energy to the local Utility Distribution Company for use by multiple customers in contiguous distribution substation service areas. The generator size and transmission needs shall be such that the plant or associated transmission lines do not require a Certificate of Environmental Compatibility from the Arizona Corporation Commission (ACC).

What are Distributed Renewable Energy Resources?

Distributed Renewable Energy Resources are applications of appropriate technologies that are located at a customer's premise that displace conventional energy resources that would otherwise be used to provide electricity to Arizona customers.

UNS Electric, Inc. (UNSE or Company) provides programs consistent with these definitions and generally refers to these programs as DG programs. For more information on these and other definitions, please visit the ACC's Renewable Energy Standard and Tariff webpage at <http://www.cc.state.az.us/divisions/utilities/electric/environmental.asp>

What is Net Metering?

Net Metering refers to the production of electricity from a qualifying renewable energy electric generator, such as photovoltaic (PV) panels, used to offset electricity provided by UNSE. Customers deemed eligible for participation in UNSE's Net Metering Tariff will be required to install a bi-directional meter capable of measuring the flow of electricity to and from the customer's premises. Net Metering customers may buy and sell electricity to and from UNSE under the applicable terms and tariff rate. In the event that a Net Metering customer carries a negative balance due to the over-production of electricity for the time period specified in the Net Metering Tariff, the customer's remaining credits will be transitioned to a payment at the applicable wholesale rate. This will occur once per year, in October. The customer's balance will then be reset to zero.

No system may exceed 125% of connected load for that meter, where connected load is defined as the maximum demand divided by 0.6. For more information on Net Metering, please visit <https://www.uesaz.com/customer/rates/>.

Why is UNSE involved with DG?

The ACC, which regulates UNSE and utilities like it in Arizona, enacted the Renewable Energy Standard and Tariff (REST) Rules in 2008. These rules require UNSE to replace a substantial portion of its retail sales with renewable energy by investing in a variety of projects, including both utility-scale and DG projects. In order to comply with a portion of the REST Rules governing DG projects, UNSE may purchase Renewable Energy Credits (REC) from eligible customers through their incentive programs. Under these programs, UNSE does not own or build the systems that generate these credits, but rather incents them by purchasing the resulting RECs. Pursuant to the REST Rules, one REC is equivalent to 1 kilowatt hour (kWh). For more information on the ACC's REST Rules, please visit the ACC's REST Rules webpage at <http://www.cc.state.az.us/divisions/utilities/electric/environmental.asp>

How does UNSE get involved with DG?

One way in which UNSE supports DG projects is by providing residential and non-residential programs for customers with qualifying renewable energy generators to participate in. These programs include a variety of

ACC approved up-front and performance-based incentive payments by technology. These incentives are the method by which UNSE actually purchases a REC. For details, terms, and conditions regarding for each qualifying technology, please see the appropriate sections of this document. Please note that UNSE issues incentive payments for RECs; these payments are NOT REBATES. It should also be noted that not every renewable technology system is eligible to receive an incentive. UNSE will only incent technologies specifically outlined herein.

Who is eligible for the incentive and how do I apply?

Any residential or non-residential customer currently connected to UNSE's electric service system that installs a qualifying renewable facility, in compliance with the terms and conditions described herein, may apply to participate in one of UNSE's DG programs. Alternatively, any UNSE-qualified installer may submit the required DG program application on behalf of a qualifying UNSE customer.

What is a UNSE-qualified installer?

A UNSE-qualified installer is an installer that has been evaluated by UNSE personnel and deemed to have met the prerequisites for qualification. In order to become UNSE-qualified, each installer must meet certain UNSE requirements, including but not limited to annual submittal of the necessary paperwork contained within the "Installer's Packet". Each submittal must include, but is not limited to the following: an Installer's Agreement, a current and valid Registrar of Contractor's (ROC) license appropriate for the solar technology being installed, Arizona business license in good standing, and similar information regarding any sub-contractor(s), if applicable. UNSE will not, under any circumstances, issue or assign incentive payment(s) to an installer who is not UNSE-qualified.

Where can I find more information?

For the terms and conditions of participation in any of UNSE's DG programs, please consult UNSE's Renewable Energy Credit Purchase Program (RECPP), which can be found online at www.uesaz.com/Renewable/. Questions may be directed to (520) 917-3673.

What else do I need to know?

Each of the programs described herein, including incentive amounts and all terms and conditions, are subject to change as dictated by program need and any and all regulatory authorities. Nothing included in UNSE's RECPP is intended as a guarantee of funds or qualification for purposes of program participation.

UNSE's RECPP does not accommodate non-customer sited projects for any reason. "Solar Farms" or other utility-scale generation projects do not qualify under UNSE's RECPP. These projects may participate in UNSE's next request for proposals (RFP) for renewable energy. Information regarding UNSE's upcoming RFP may be found at www.uesaz.com.

UNSE's RECPP does not allow for any aggregated or virtual net metering of a customer's loads under any circumstance. The incentives described herein must meet the definitions of DG and Renewable Energy Resource as defined by the ACC and contained within the Frequently Asked Questions portion of this document.

II. Project Funding

UNSE will allocate funds to all qualifying technologies applying for residential and non-residential incentives. Non-PV categories may be protected from over-spending in PV at the discretion of UNSE Program Managers. This may result in a 10% carve out for technologies other than PV for both classes of projects. No more than 25% of a single budget may be reserved for any single project.

Funding for the following is detailed below:

- 1. Up-Front Incentive Levels for Solar Electric Non-Residential Projects 70 kW DC or Less**
- 2. Residential Solar Water Heating .**

Funds will be made available for reservations on a first-come, first-served basis, until annual funding is exhausted. If the incentive level has changed from the date of the original reservation to the date when the reservation is approved, the new incentive level shall be applied.

III. Installer Qualifications

All systems receiving incentives under the RECPP must be installed by an installer properly licensed by the state of Arizona and qualified to install solar projects. UNSE will verify that the installer meets the following minimum qualifications prior to confirming a reservation request:

1. The installer must possess a valid license on file with the Arizona Registrar of Contractors (AZROC) with a license classification appropriate for the solar technology being installed. Alternatively, the installer must identify use of any sub-contractor(s) and ensure the subcontractor(s) maintain an appropriate license(s) on file with the AZROC for the solar technology being installed. Installers may not sub contract outside their scope of work per the AZROC rules; and
2. The installer must possess an Arizona business license that is active and in good standing.

Installers must have completed the UNSE Installer's Packet and have provided the above information to be retained on file with UNSE. The installer must certify that the information on file remains current with the submission of each reservation request. Information on file must be renewed by the end of the calendar year and resubmitted for participation in the upcoming program year.

IV. Net Metering

RECPP incentives can be applied to systems designed to serve only the typical load of the customer with whom the incentive agreement has been established. The assessment of that typical load does not preclude the periodic production of electricity in excess of the customer's demand. All projects must comply with ACC Net Metering rules.

V. Prohibition of System Removal

Neither the Qualifying System nor any component thereof may be removed by any party, including but not limited to the applicant or future owners or occupants of the property until expiration of the Renewable Energy Credit Agreement or the last day of the final month of the final full calendar year of the applicable incentive payment term. If the Qualifying System or any component thereof is removed by any party in violation of this provision, the customer party to the Renewable Energy Credit Agreement shall immediately reimburse UNSE a prorated amount of the incentive amount paid by UNSE to customer or on behalf of customer to an authorized third party.

In addition, if a Qualified System is removed, UNSE shall monitor that specific customer site to ensure that an additional incentive is not provided for any new distributed renewable energy resource system on that site until the original Renewable Energy Credit Agreement's contracted operational life of the original system has expired.

UNSE shall attempt to monitor the number of missing or non-working distributed generation systems and shall summarize its observations in its annual Compliance Report.

VI. Community Solar

For customers who do not wish to operate a DG system, UNSE offers the Bright Arizona Community Solar Program. The Bright Arizona Community Solar Program offers an easy and affordable way for UNSE customers to meet their electric needs with locally generated solar power by purchasing solar power in "blocks" of 150 kWh per month. A customer may buy some or all of their power through the program. For more information, please see UNSE's Green Energy webpage at www.uesaz.com/renewable/home/bright/.

VII. Up-Front Incentives

Up-Front Incentive (UFI) programs are limited to Residential and Small Non-Residential Projects only.

a. Qualifications

Qualifying Technology	Size Limit
Residential Solar Water Heating	
Small Non-Residential Solar PV	70 kW DC or Less

b. Application Process

UNSE's UFI application process appears below. UNSE requires strict adherence to this process. Any deviation from the requirements below may result in your application being denied. If you are working with an installer or contractor, please ensure that they follow the required processes explained below. UNSE will assign payment under its UFI application process to the party that appears on the assignment of payment form or as designated by the UFI REC Purchase Agreement. Please work with your installer or contractor prior to beginning the process below to determine who payment should go to. **Once assignment of payment is decided and submitted to UNSE, modifications will not be allowed under any circumstances.**

1st Step: Submittal of the Properly Completed UNSE Application.

*Please visit www.uesaz.com/renewable for online application submission.

2nd Step: Submittal of the Properly Completed Reservation documents to UNSE.

The RECPP Reservation documents includes the following items:

1. Assignment of Payment Form (AOP) if applicable
2. IRS Form W-9, required from the UNSE main customer for cash purchase projects. For lease projects W-9 is required from the lessor.
3. Current UFI Renewable Energy Credit Purchase Agreement, signed by the UNSE main customer.
4. For Solar Water Heating Applications:
 - A recent copy of the Solar Rating and Certification Corporation (SRCC) OG300 schematic obtained from the SRCC website that includes in the printed view the annual kWh savings estimated.
 - In the event of a collector substitution both collectors must be SRCC OG100 rated. A recent copy of the SRCC OG100 Certification and Rating is required for both the collector named on the OG300 system and the substituting collector.

*** All Reservation paperwork must contain the associated project number that is provided upon successful completion of online application**

3rd Step: Required program documents & other associated paperwork can be forwarded as follows:

Mail may be forwarded to the following address regardless of program:

UNS Electric, Inc.
Renewable Resources Department
2498 Airway Ave
Kingman, AZ 86401

Emails and Faxes may be sent to the following regardless of program:

renewables@uesaz.com or faxed to 928-681-8999

Paperwork sent directly to any specific employee Company email address may not be processed.

4th Step: Confirmation or Denial of Reservation.

- Once received, UNSE will match the online application with the submitted Reservation Packet. It is the customer's and/or installer's responsibility to ensure that all forms are filled out completely and correctly. **Forms with missing and/or incorrect information will be placed in a "Missing information" status and will not be approved until corrected. Outdated forms will be rejected.**
- UNSE will evaluate each application for completeness and confirm whether or not reservation funds are available. **All applications are subject to the availability of program funds.** UNSE will also verify, where an installer is used, that the installer is a UNSE-qualified installer. Provided that the application meets UNSE's requirements, and that the installer, if any, is UNSE-qualified, and that program funds sufficient to fund the application are available, UNSE will issue the customer and installer a reservation confirmation letter and provisionally approve the application. **If no funds are available at the time UNSE processes the reservation, UNSE will notify the installer and customer and the application will be denied.**

5th Step: Submittal of Jurisdictional Final Inspection.

1. Residential Programs:

Within 60 days from the date of the reservation confirmation letter, customer or installer must submit an application to the appropriate jurisdictional entity (e.g., City of Kingman, Lake Havasu, Nogales or Mohave, Santa Cruz County) for a final inspection of the qualifying system. Failure to obtain a jurisdictional final inspection within 180 days of the date of the reservation confirmation letter will result in the revocation of a customer's incentive reservation. If this occurs, the customer or installer must reapply to participate in the program subject to available funding and incentive levels in effect at time of reapplication.

2. Non-Residential Programs:

Within 60 days from the date of the reservation confirmation letter, customer or installer must submit an application to the appropriate jurisdictional entity (e.g., City of Kingman, Lake Havasu, Nogales or Mohave, Santa Cruz County) for a final inspection of the qualifying system. Failure to obtain a jurisdictional final inspection within 180 days of the date of the reservation confirmation letter will result in the revocation of a customer's incentive reservation. If this occurs, the customer or installer must reapply to participate in the program subject to available funding and incentive levels in effect at time of reapplication.

- 3. In the event that a jurisdictional final inspection is not completed within the required timelines and the customer or installer provides proof to UNSE that a correctly completed application for a jurisdictional final inspection was made within the timeline required. UNSE will neither process nor revoke the customer's**

reservation for 30 days to allow customer time to confirm with the inspecting jurisdiction when the inspection will occur. Provided that the customer provides UNSE with an inspection date within those 30 days, the customer's reservation will be honored. If 30 days elapses with no information from the customer, the reservation will be revoked and customer must reapply to participate in the program subject to available funding and incentive levels in effect at time of reapplication.

4. For all PV, Solar Water Heating and other non-PV systems, the installer or customer must submit proof of a passed final inspection directly to UNSE that includes the installation address, scope of work, and inspection status.

6th Step: Submittal of Certificate of Completion (COC) Form.

For all program applications: once the jurisdictional final inspection has been approved, the installer or customer must submit the COC. For all systems, please submit this form electronically to renewables@uesaz.com. It is the responsibility of the installer to be sure that the COC contains the reservation Project Number, any COC's without a project number are considered incomplete and **will not be accepted**.

7th Step: UNSE will inspect the system and set the appropriate meters if required (such as for PV).

8th Step: UNSE process of incentive payment.

Upon receipt of the COC and the system passing inspection, UNSE will process the payment to the party indicated on the Assignment of Payment form or as designated by the UFI REC Purchase Agreement. In the case of solar leases where only the Lessor can be paid, see section 6.3 of the UFI REC Purchase Agreement. Assignment of Payment forms may only be submitted once as part of the RECPP Reservation Packet. UNSE will not accept changes to the AOP. UNSE will not pay incentives without complete and accurate receipt of the required documents.

c. Restrictions/Important Notes:

1. UNSE reserves the right to modify the business process to better serve customers or to increase efficiency. Please refer to www.uesaz.com/renewable for the most up-to-date information.
2. With the exception of minor system modifications during the procurement process (panel wattage changes of less than 10 watts, alternative inverter, et cetera), any material changes to a system made after the application is processed will result in cancellation of the existing application and will require a new online application to be submitted. The reservation request may be denied because the request is not in compliance with program requirements (see specific technical sections below).
3. Project extensions will not be granted except as outline herein.
4. Receipt of the application is not valid until a properly completed RECPP Reservation documents and the installer's New Supplier Fact Sheet has been received by UNSE. Once the Reservation Packet is received and deemed complete, the application is validated and the reservation retained at the incentive level in place at time of validation. Any reservation packets submitted incorrectly will be cancelled as will their corresponding online application. Reapplication may result in a reduction of incentive or unavailable funding.

5. UNSE will not purchase RECs from retroactive systems. “Retroactive” is defined as a renewable solar system installed before an application for incentive was received and approved by UNSE. UNSE must receive the required program documents; RECPP Reservation Packet and approve the application, and reserve the funds prior to the system being installed to receive the incentive (“installed” is defined as the date of the final clearance from the appropriate jurisdiction).
6. Incentives are not guaranteed.
7. No more than 25% of a single budget may be reserved for any single project.
8. In order to participate in the RECPP, installers must have on file with UNSE a completed Installer’s Packet, including a New Supplier Fact Sheet.. This document is available in the Installer’s Corner at www.uesaz.com/renewable.

A. Non-Residential Projects 70 kW DC or Less

The UFIs for eligible customers with non-residential projects 70 kW or less are paid in a one-time payment based on the system's designed capacity. Table 1 identifies the incentives available for eligible systems.

Table 1. Dollar per Watt Incentive for On-Grid Non-Residential Systems 70 kW DC or Less

YEAR	SMALL NON-RESIDENTIAL
2015	\$0.20

a. Terms & Restrictions

- On-Grid Small Non-Residential customers will receive a UFI up to a **cap of 70 kW DC**. The UFI may not exceed 50% of Total System Cost.
- The customer must pay at least 15% of the project cost, after other government incentives (e.g., tax credits) are considered. (See explanation of incentive calculation below.)
- Systems may not be eligible to receive RECPP incentives if other utility incentives are applied.
- As described later in this document, **these incentive levels may be decreased because of sub-optimal system positioning**.
- The incentive amount will be calculated at the time the application is approved for reservation. If federal or state incentives change after the system reservation is approved, the incentive amount reserved will not change as long as the reservation is not cancelled.
- For consumer protection, and in order to minimize program manipulation affecting legitimate solar development, no incentive applications will be accepted where the installed price per watt exceeds \$6.00, or where labor charges are in excess of 200% of the system component costs.
- In return for UNSE's payment of a UFI, UNSE will be given complete and irrevocable ownership of the Renewable Energy Credits until December 31st of the 20th full calendar year after completion of installation of the system. Operational life during that time frame must be supported by system warranty or planned maintenance schedules. If a system size exceeds the incentive cap, UNSE will still be given complete and irrevocable ownership of the Renewable Energy Credits, within this timeline, for the full system size.

Project Requirements after Installation

After completing the installation of a Non-Residential Solar Electric project of 70 kW DC or less, the customer must continue to provide information to UNSE about the system's performance.

All customer systems receiving UFIs are obligated to include a UNSE-supplied production meter, which will report system production to UNSE in accordance with the regular meter-reading schedule. UNSE, at its option, may perform periodic inspections of the system for operation, metered production, and reporting purposes.

b. System Qualifications and Requirements

All solar electric generating Customer Systems must meet the following system and installation requirements to qualify for UNSE's RECPP. Capitalized terms not defined herein shall have the meanings ascribed to them in the RECPP Agreement.

The following equipment qualifications listed are mandatory requirements which must be met at the time of project commissioning to receive an RECPP incentive. The installation guidance is intended to provide consumers with information on installation and operation practices which are most likely to support achieving the system's designed output. Installation guidance is mandated in order for a project to receive an RECPP incentive, as it does reflect both industry and UNSE concurrence with those practices which are important for a technology to best achieve the designed output. In the future, additional installation guidance items may be considered for inclusion as part of the equipment qualifications.

UNSE acknowledges that many regulations and site-specific requirements may apply to the installation of renewable energy technologies. UNSE agrees that no requirement imposed by these technology criteria shall be imposed in conflict with any other governmental requirements. Any RECPP-based requirement, which is in conflict with a site-specific governmental requirement, shall be detailed in the reservation request. All qualifying systems must adhere to the following requirements in addition to the RECPP program requirements:

Required Equipment Standards

1. The Customer System components must be certified as meeting the requirements of IEEE-929 - Recommended Practice for Utility Interface of Photovoltaic Systems.¹
2. Photovoltaic components must be certified by a nationally recognized testing laboratory as meeting the requirements of UL-1703 - Standard for Flat Plate Photovoltaic Modules and Panels Systems and be covered by a non-prorated manufacturer's warranty of at least 20 years.
3. The inverter must be certified as meeting the requirements of IEEE-1547 - Recommended Practice for Utility Interface of Photovoltaic Systems and it must be UL-1741 certified. Inverters must be covered by a manufacturer's warranty of at least ten years.
4. The Customer System design and installation must meet all requirements of the latest edition of the National Electrical Code (NEC), including Article 690 and all grounding, conductor, raceway, over-current protection, disconnect, and labeling requirements.

¹ Some technology-specific criteria reference third party standards. The requirements of those standards are fully applicable when referenced as part of technology specific criteria. UNSE recognizes that new standards are likely to develop in the near future for technologies included in the RECPP, and recommends that the new standards are examined for application in this program definition as they become available.

5. All other electrical components must be UL listed.
6. The Customer System and installation must meet the requirements of all federal, state, and local building codes and have been successfully inspected by the building official having jurisdiction. Accordingly, the installation must be completed in accordance with the requirements of the latest edition of NEC in effect in the jurisdiction where the installation is being completed, including, without limitation, Sections 200-6, 210-6, 230-70, 240-3, 250-26, 250-50, 250-122, all of Article 690 pertaining to Solar Photovoltaic Systems, thereof, all as amended and superseded.
7. The Customer System must meet Company and Arizona Corporation Commission interconnection requirements for self-generation equipment. See <http://images.edocket.azcc.gov/docketpdf/0000074361.pdf> for these requirements.

Installation Requirements

1. The Customer System installation must meet UNSE's Electric Service Requirements 2014 Edition, Section 1.22, as follows:

“As required by TEP/UES's Interconnection Requirements for Distributed Generation, the customer shall provide and install a disconnect switch to isolate all ungrounded conductors of the generating facility from the TEP/UES system. The switch shall be a gang-operated, load-break device with a visible air-gap in the open position. It shall be rated for the current and voltage requirements of the generating facility and shall be lockable in the open position”.
2. The DG utility meter and utility disconnect will be installed within 10' of the main service panel and in a location readily accessible by UNSE at all times.
3. Products must be installed according to manufacturers' recommendations.
4. The Customer System PV panels and modules must face within +/- 90 degrees of true south, and be substantially unshaded from 9 am to 3 pm. System arrays which are facing at an azimuth angle other than optimal as defined herein or shaded for more than one hour per day will be subject to a reduced incentive payment per Attachment B.
5. The Customer System PV panels and modules must be fitted at an angle of 0 degrees to 60 degrees from horizontal. System arrays which are fitted with an elevation angle other than optimal as defined herein will be subject to a reduced incentive payment per Attachment B.
6. For Residential Customer Systems, Company shall furnish a meter, DG meter socket, and AC disconnect switch in accordance with Section 1.22 of UNSE's Electric Service Requirements. Company shall install the meter. For Non-Residential customer systems, Company shall furnish and install DG meter only. The meter socket and AC disconnect shall be installed in accordance with Section 1.22 of UNSE's Electric Service Requirements. Installer must notify UNSE of wiring configuration so that Company may provide the appropriate 3-phase meter.
7. Total voltage drop on the DC and AC wiring from the furthest PV module to the AC meter will not exceed 2%.
8. PV panels and DC to AC inverter will be installed with sufficient clearance to allow for proper ventilation and cooling. At a minimum, manufacturer clearance recommendations will be observed. PV modules may be mounted less than 4 inches above any surface and an additional inch of clearance for each foot of continuous array surface area beyond four feet in the direction parallel to the mounting support surface, only

in cases when arrays are flush-mounted to roof pitch. Otherwise, the four-inch spacing and an additional inch of clearance for each foot of continuous array surface area minimum is required.

9. Storage Batteries are not allowed as part of the Customer System unless the inverter is a separate component and UNSE can locate the DG utility meter at the inverter's output. If configured otherwise, battery losses will adversely reflect in the annual AC metered energy output. Customer's solar energy generation and energy storage system must meet the requirements of 2 and 3 of this Attachment A.
10. The DC to AC inverter used must provide maximum power point tracking for the full voltage and current range expected from the photovoltaic panels used and the temperature and solar insulation conditions expected in Tucson, Arizona.
11. The DC to AC inverter must be capable of adjusting to "sun splash" from all possible combinations of cloud fringe effects without interruption of electric production.
12. UNSE reserves the right to modify standards as technology changes on a case-by-case basis, pending independent laboratory analysis, Professional Engineer (PE) stamp, or UNSE engineering analysis.

General Requirements

1. All Customer System installations must be completed in a professional, workmanlike and safe manner.
2. The Customer must be connected to the Company's electric grid and be a net-metered customer.
3. Systems must be permitted and inspected by the jurisdiction having authority over construction projects in the customer's locale.
4. The project must comply with applicable local, state, and federal regulations.
5. Products must be installed according to manufacturer's recommendations.
6. Installations must meet applicable governmental statutes, codes, ordinances, and accepted engineering and installation practices.
7. All major system components must be new and must not have been previously placed in service in any other location or for any other application.
8. All renewable electricity generation systems must include a dedicated performance meter (provided by UNSE) which allows for measurement of system energy production.
9. PV system components shall be properly labeled, including AC & DC disconnects, DG meter, service panel (outside cover), and breakers inside the service panel.
10. The system will in all cases have a material and full labor warranty of at least five years.

Solar Electric off-Angle & Shading Annual Energy Derating Chart for Non-Residential Systems of 70 kW DC or Less

Up-Front Incentive (UFI) Payment - PV Off-Angle/Azimuth & Shading Derating Chart

Array Azimuth Angle from Due South																				
	East	80	70	60	50	40	30	20	10	South	10	20	30	40	50	60	70	80	West	
Array Angle Above Horizontal	0	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	
	5	90%	90%	90%	90%	90%	90%	95%	95%	95%	95%	95%	95%	90%	90%	90%	90%	90%	90%	
	10	90%	90%	90%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	95%	90%	90%	90%	85%	
	15	90%	90%	95%	95%	95%	95%	100%	100%	100%	100%	100%	100%	95%	95%	95%	95%	90%	85%	
	20	85%	90%	95%	95%	95%	100%	100%	100%	100%	100%	100%	100%	95%	95%	95%	90%	85%	85%	
	25	85%	90%	95%	95%	95%	100%	100%	100%	100%	100%	100%	100%	95%	95%	95%	90%	85%	85%	
	30	85%	90%	90%	95%	95%	100%	100%	100%	100%	100%	100%	100%	95%	95%	90%	90%	85%	80%	
	35	85%	85%	90%	95%	95%	100%	100%	100%	100%	100%	100%	100%	95%	95%	90%	85%	85%	80%	
	40	80%	85%	90%	95%	95%	100%	100%	100%	100%	100%	100%	100%	95%	90%	90%	85%	80%	75%	
	45	80%	85%	85%	90%	95%	95%	100%	100%	100%	100%	100%	95%	95%	90%	85%	85%	80%	75%	
	50	75%	80%	85%	90%	90%	95%	95%	100%	100%	100%	95%	95%	95%	90%	90%	85%	80%	70%	
	55	75%	80%	85%	85%	90%	95%	95%	95%	95%	95%	95%	95%	90%	90%	85%	80%	80%	70%	
	60	70%	75%	80%	85%	85%	90%	90%	90%	95%	90%	90%	90%	85%	85%	85%	80%	75%	70%	

0 degree kept at 85% to account for soiling

3/12 roof pitch to be kept at 5% derate for higher cell temps of flush mount

Array Shading

If both off-angle shading conditions apply, multiply the off angle derating factor with the shading derating factor to obtain the array derating factor for the Up-Front Incentive (UFI) payment Calculation.

Maximum Morning Shaded Hours	0	1	0	1	0	2	1	2	2	0	3	1	3	3	2
Maximum Evening Shaded Hours	0	0	1	1	2	0	2	1	2	3	3	3	1	2	3
Percentage of annual energy	100%	100%	100%	95%	90%	90%	85%	85%	75%	75%	70%	70%	70%	80%	80%

Qualifying PV systems using Building Integrated Photovoltaic (BIPV) modules of total array capacity of 5 kW DC or less shall receive 90% of the UFI incentive value. Systems using BIPV modules of total array capacity of greater than 5 kW DC shall be derated based on heating unless the applicant can demonstrate optimal performance.

B. Residential Solar Water Heating

Residential solar water heating applications are eligible for up-front incentives (UFI). UFIs are those incentives where the customer receives a one-time payment based on the system's designed capacity.

Table 2. UFIs for Residential Solar Water Heating and Space Heating

Year	Residential Incentive Level**
2015	\$0.40/kWh (max \$1,750)

a. Terms & Restrictions

- Energy savings rating is based on the Solar Rating and Certification Corporation (SRCC) OG-300 published rating or International Association of Plumbing and Mechanical Officials (IAPMO) rating to the OG-300 standard, Engineering Report or reputable Energy Modeling and Performance simulation Report. The rate applies to forecast/measured first year energy savings only.
- The UFI may not exceed 50% of total System Cost.
- The customer must pay at least 15% of the project cost, after other government incentives (e.g., tax credits) are considered. (See explanation of incentive calculation below.)
- Systems may not be eligible to receive RECPP incentives if other utility incentives are applied.
- The incentive amount will be calculated at the time the application is approved for reservation. If federal or state incentives change after the reservation has been approved, the incentive amount reserved will not change as long as the reservation is not cancelled.
- In return for UNSE's payment of a UFI, UNSE will be given complete and irrevocable ownership of the Renewable Energy Credits until December 31st of the 20th full calendar year after completion of installation of the system. Operational life during that time frame must be supported by system warranty or planned maintenance schedules.

i. Qualifications for Residential Solar Water Heating

The following equipment qualifications listed are mandatory requirements which must be met at the time of project commissioning to receive a RECPP incentive. The installation guidance is intended to provide consumers with information on installation and operation practices which are most likely to support achieving the system's designed output. Installation guidance is mandated in order for a project to receive a RECPP incentive, as it does reflect both industry and UNSE concurrence on those practices which are important for a technology to best achieve the designed output. In the future, additional installation guidance items may be considered for inclusion as part of the equipment qualifications.

UNSE acknowledges that many regulations and site-specific requirements may apply to the installation of renewable energy technologies. UNSE agrees that no requirement imposed by these technology criteria shall be imposed in conflict with any other governmental requirements. Any RECPP-based requirement which is in conflict with a site-specific governmental requirement shall be detailed in the reservation request. All qualifying systems must adhere to the following requirements in addition to the RECPP program requirements:

Equipment Specifications

1. Domestic Solar Water Heating systems will be rated by the Solar Rating Certification Corporation (SRCC) and or the International Association of Plumbing and Mechanical Officials (IAPMO) and meet the OG-300 system standard. Systems that include OG-100 collectors, but are not certified under OG-300, will need to be verified by submitting either a testing certification for a substantially similar system prepared by a publicly funded laboratory or by submitting an engineering report stamped by a registered professional engineer or a reputable Energy Modeling and Performance Simulation Report detailing annual energy savings.
2. Active, open-loop systems are not eligible for RECPP incentives except for active, open-loop systems that have a proven technology or design that limits scaling and internal corrosion of system piping, and includes appropriate automatic methods for freeze protection and prevents stagnation temperatures that exceed 250 degrees Fahrenheit (F) under all conditions at the location of installation. Details disclosing conformance with this exception shall be submitted as part of the manufacturer's verification documentation.
3. The 'high' limit on all Domestic Water Heating controllers shall be set no higher than 160 degrees F.
4. Contractors must provide a minimum of a ten year collector warranty as provided by the system manufacturer, including a minimum warranty period of five years for repair/replacement service to the customer.
5. Domestic Water Heating systems that are installed as an addition to an existing system or are submitted as a customer designed system or not certified to OG-300 must be specifically reviewed and approved by the utility.
6. The solar collector shall have an equipment warranty of at least 10 years to qualify for a UFI
7. The heat exchangers, and storage elements shall have an equipment warranty of at least 5 years to qualify for a UFI

Installation Guidance

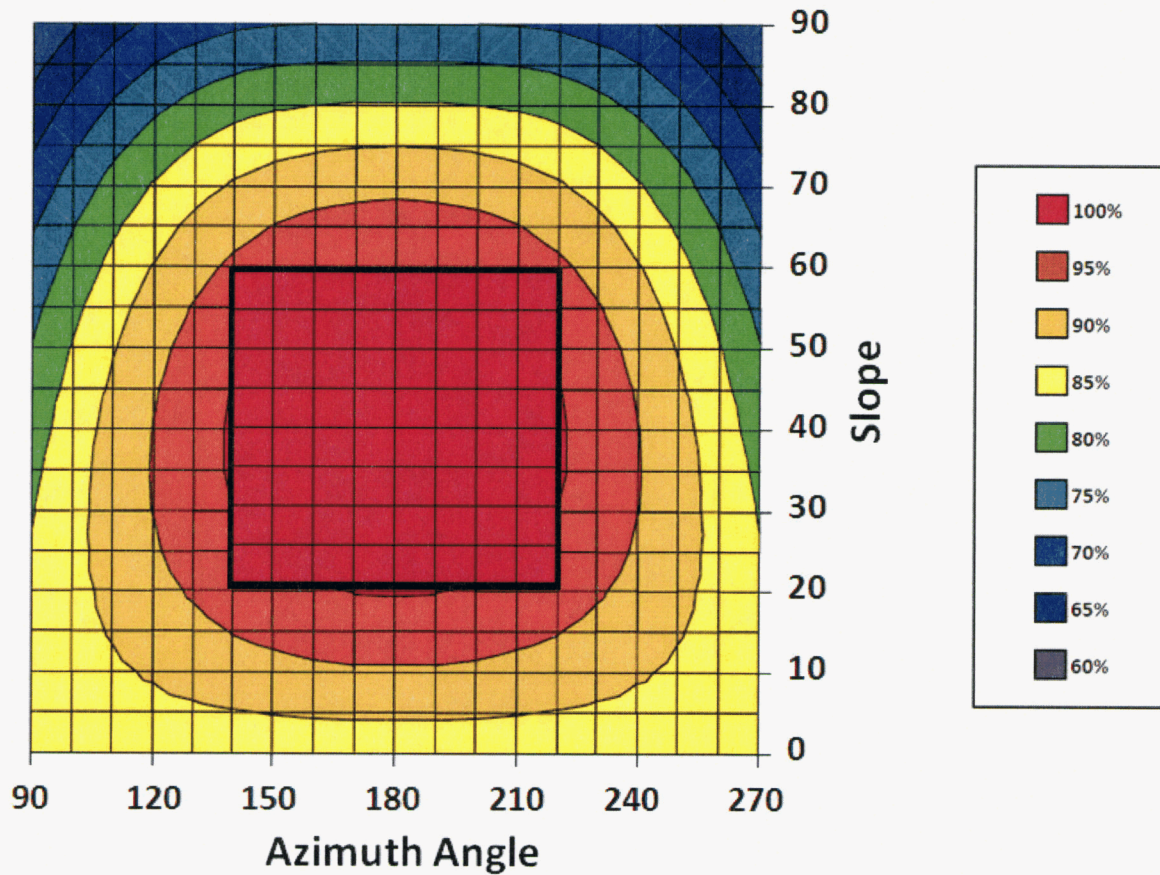
1. The system shall be installed with a horizontal tilt angle between 20 degrees and 60 degrees (40 and 60 degrees for space heating applications), and an azimuth angle of +/- 60 degrees of due south (+/- 20 degrees for space heating applications). It is recommended that collectors be positioned for optimum winter heating conditions at a minimum tilt angle of 45 degrees above horizontal, or as recommended by the manufacturer for the specific collector type and geographic location of installation. Azimuth or tilt angles outside these parameters may be reviewed and approved by the utility, at their discretion. Solar Hot Water de-rating chart, contained herein, may be used to adjust incentive level based upon affected output.
2. All systems should be installed such that the energy collection system is substantially unshaded and should have substantially unobstructed exposure to direct sunlight between the hours of 9:00 a.m. and 3:00 p.m. Solar Hot Water de-rating chart may be used to adjust incentive level based upon affected output due to shading.
3. Heat exchange fluid in glycol systems should be tested, flushed and refilled with new fluid as necessary or at a minimum every five years or sooner per manufacturer's recommendations.
4. The anode rod should be checked and replaced per manufacturer's recommendations, but no less frequently than every five years.
5. For optimal system performance; a timer, switch, and a temperature sensor on the backup element of the storage tank is recommended.
6. The collectors and storage tank should be in close proximity to the backup system and house distribution system to avoid excessive pressure or temperature losses.
7. It is recommended that in areas where water quality problems are reported to have reduced the expected life of a solar water heater, that a water quality test is performed for each residence to screen for materials that through interaction with the materials of the proposed solar water heating system may reduce the expected operational life of the system components.
8. In areas subject to snow accumulation, sufficient clearance will be provided to allow a 12" snowfall to be shed from a solar collector without shadowing any part of the collector.
9. Ball valves shall be used throughout the system. Gate valves shall not be used in any new installation systems.
10. Pipes carrying heated fluids shall be insulated for thermal energy conservation as well as personal protection when exposed to ambient conditions, although this is highly recommended in either situation.
11. UNSE reserves the right to modify standards as technology changes on a case-by-case basis, pending independent laboratory analysis, Professional Engineer (PE) stamp, or UNSE engineering analysis.

General Requirements

1. The project must comply with applicable local, state, and federal regulations.
2. Products must be installed according to manufacturers' recommendations.
3. Installations must meet applicable governmental statutes, codes, ordinances, and accepted engineering and installation practices.

4. Systems must be permitted and inspected by the jurisdiction having authority over construction projects in the customer's locale on new installations.
5. All major system components must be new and must not have been previously placed in service in any other location or for any other application.

ii. Solar Water Heating Off-Angle and Shading Annual Energy De-rating Chart



If the SWH system falls outside of the 95-100% performance band, then the UFI for the system will be de-rated. The incentive will be de-rated based on the decrease in annual energy output anticipated by this chart.

IX. Other Incentives

A. Technologies without Technology Specific Criteria

Technology specific criteria have not yet been developed for the following qualifying technologies:

- Fuel Cells
- Other

For applicants requesting incentives for these technologies or for applicants requesting installation of a technology with specific project technology criteria, but where some criteria cannot be met, the applicant will need to submit design and output documentation.

Applicants installing these systems will, at a minimum, need to provide an energy savings and designed output report for the system. The report must include either a testing certification for a substantially similar system prepared by a publicly funded laboratory or an engineering report stamped by a qualified registered professional engineer. The engineering report and/or testing certification shall provide a description of the system and major components, design criteria and performance expectations, applicable standards and/or codes, and a brief history of components in similar applications. Additional information may be required as part of the RECPP requirements.

B. Non-Conforming Projects

Non-conforming projects will be identified as the Program evolves. Incentive levels for such projects will be calculated based on UNSE engineering analysis, independent laboratory analysis, and/or professional engineering (PE) stamps. Non-conforming projects that prove combined economic and renewable energy value will be allowed appropriately calculated incentives within the RECPP.

C. Guidelines for Photovoltaic Projects Interconnecting Without Incentives

Customers may install grid-tied photovoltaic electric systems behind their meter without incentives. If a customer chooses to do so, the customer shall still notify UNSE that a renewable energy generator is being connected to UNSE's grid and complete any associated interconnection processes. The process for non-incentive utility interconnection, for both residential and non-residential projects, is available at www.uesaz.com/renewable.

Appendix 1: Incentive Summary Tables

RECPP – CONFORMING PROJECT INCENTIVE MATRIX

2015 Program Year

Technology/Application	UP FRONT INCENTIVE ¹ 20-Year REC Agreement	10-Year REC Agreement ² 10-Year Payment (\$/kWh)	15-Year REC Agreement ² 15-Year Payment (\$/kWh)	20-Year REC Agreement ² 20-Year Payment (\$/kWh)
SOLAR ELECTRIC: NON-RESIDENTIAL (GRID-TIED) 70 kW DC or less	\$0.20/Watt DC ⁸	NA	NA	NA
RESIDENTIAL SOLAR WATER/SPACE HEATING ^{6,9,10}	\$0.40/kWh	NA	NA	NA

Notes:

- 1) Non-residential systems 70 kW AC or less are UFI only.
- 2) Some UFI based installations will require an adjustment of the incentive as detailed in the PV Incentive Adjustment Chart.
- 3) Energy savings rating is based on the SRCC OG-300 published rating. The customer contribution must be a minimum of 15% of the project cost after accounting for and applying all available Federal and State incentives.

Appendix 2: Glossary of Terms

ACC – Arizona Corporation Commission.

AZROC – Arizona Registrar of Contractors.

Applicant – Utility customer of record for the Utility Revenue Meter located at the installation site; a builder of the structure (residential or non-residential) who will reserve and install the Qualifying system; or for an off-grid Qualifying System, the property owner for the installation site located within a Utility's service territory.

Arizona Business License – A business license issued by the ACC.

Cancelled – Reservation Status indicating that a Reservation has been terminated, funding is no longer allocated, and the utility has removed the reservation from the funding queue.

Cancellation – The termination of the Reservation.

Commissioned – Qualifying System certified to be in operation.

Commissioning Package – Written verification signed by the installer and the customer confirming that the system has been installed in conformance with the approved reservation and that the system is ready for operation.

Conforming Project – Any project utilizing a renewable technology listed in Attachment D.

Conformance Inspection – Inspection performed by the utility to verify that the system has been installed and operates in conformance with the Reservation application.

Customer – Utility customer of record for the Utility Revenue Meter located at the installation site or a builder of the structure (residential or non-residential) who will reserve and install the Qualifying System.

Extension – The extension of the Reservation Timeframe.

Installer – The entity or individual responsible for the installation of a qualifying system.

Installed – The date of the final clearance from the appropriate jurisdiction

Interconnection Inspection – Inspection performed by the utility to confirm that the system can be safely interconnected to the power grid.

Non-Conforming Project – Non-conforming projects include, but are not limited to, projects with staged completion dates, multi-customer or multi-system projects, projects involving more than one technology, projects requiring new or unique agreement terms, projects with technologies for which qualification standards have not been developed or projects requiring non-standard timeframes.

Performance Based Incentive ("PBI") – Incentive based on a rate per actual kWh output or on equivalent kWh of energy savings.

Project Costs – System Costs plus financing costs.

Proof of Project Advancement – Documentation demonstrating that a project is progressing on schedule and is staged for Commissioning on or before the end of the Reservation Timeframe.

Qualifying System – Distributed renewable energy systems meeting the qualifications for production of qualified Renewable Energy Credits in Arizona acceptable to the Arizona Corporation Commission as they may be defined for affected utilities to meet any renewable energy standards.

Renewable Energy Credit (“REC”) – One Renewable Energy Credit is created for each kWh, or kWh equivalent for non-generating resources, derived from an eligible renewable energy resource. RECs shall include all environmental attributes associated with the production of the eligible renewable energy resource.

Reservation – A dollar amount committed by the utility to fund a project if all program requirements are met.

Reservation Status – Indicator relating to approval or denial of a Reservation request. If a Reservation is approved, the Reservation Status is Reserved. If a Reservation request is denied, the Reservation Status is either Cancelled or Wait Listed.

Reserved – Status indicating the acceptance of a Reservation request.

Reservation Timeframe – The duration of the utility’s funding commitment for a Reservation.

Retroactive System – A Renewable solar system installed before an application for incentive was received and approved by UNSE.

System Costs – Costs associated with the Qualifying System components, direct energy distribution, system control/metering, and standard installation costs directly related to the installation of the Qualifying System.

Up Front Incentive (“UFI”) – One time incentive payment based on system capacity or estimated energy kWh production rather than on measured system output.

Wait List – Status indicating Applicant has met program requirements, but the Utility has insufficient funding to commit to funding the project.